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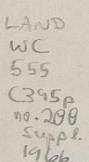
# POLIOMYELITIS

SURVEILLANCE

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SUPPLEMENT TO PSU REPORT NO. 288
JUNE 1, 1966

RESULTS OF THE SEPTEMBER 1965
UNITED STATES IMMUNIZATION SURVEY



U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE PUBLIC HEALTH SERVICE



## SUPPLEMENT TO PSU #288

RESULTS OF THE SEPTEMBER 1965 UNITED STATES IMMUNIZATION SURVEY

Poliovaccine Diphtheria-Pertussis-Tetanus Measles Vaccine, Measles History

Prepared in Cooperation with Earle Gerson, Bureau of the Census

Communicable Disease Center

Statistics Section

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These tables present the results of the September 1965 survey of the immunization status of the population of the United States, conducted by the Bureau of the Census in cooperation with the Communicable Disease Center. Information is presented on poliovaccine status, both oral and inactivated, for ages under 20 years; diphtheria-pertussis-tetanus immunization for children under 10 years; measles vaccine history and measles history for children through 10 years of age.

#### Tables of data are presented in the following Sections:

Section A.	Tables 1-5.	Summary Tables, Poliovaccine Immunization Status, Ages Under 20 Years
Section B.	Tables 6-10.	Diphtheria-Pertussis-Tetanus Immunization Status, Ages 1-9 Years
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Section E.	Tables 14-15.	Standard Error Tables, Computed by the Bureau of the Census.

NOTE: Estimates for each age group in each table have been independently rounded without adjustment to the table total. This accounts for minor discrepancies in the tables.

#### Tables 1-5

Section A. Summary Tables, Poliovaccine Immunization Status Ages Under 20 Years

Table 1A. Poliovaccine Status - United States, 1965. Ages Under 20 Years Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV) Percent of Population with Doses as Specified

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and 0 OPV
1-4	24.3	25.3	24.3	73.9	16.3	9.9
5-9	47.3	28.3	14.4	89.9	7.1	3.0
10-14	49.5	29.2	13.4	92.1	5.8	2.1
15-19	43.9	31.5	13.0	88.3	7.9	3.7

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.

Table 1B. Poliovaccine Status - United States, 1965. Ages Under 20 Years
Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)
Number of Persons in the Population (thousands)

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and đ OPV
1-4	4 006	4 176	4 003	12 185	2 682	1 631
5-9	9 627	5 754	2 930	18 311	1 445	604
10-14	9 445	5 578	2 567	17 590	1 111	398
15-19	7 305	5 249	2 158	14 712	1 319	624

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.

Table 2A. Poliovaccine Status - United States, 1965. Ages Under 20 Years - White Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)

Percent with Doses as Specified

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and 0 OPV
1-4	25.2	26.9	24.4	76.6	15.0	8.5
5-9	48.3	29.3	13.8	91.4	5.9	2.7
10-14	50.2	30.4	12.5	93.1	4.9	2.0
15-19	44.4	32.7	12.2	89.2	7.1	3.7

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.

Table 2B. Poliovaccine Status - United States, 1965. Ages Under 20 Years - White Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)

Number of Persons (thousands)

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and 0 OPV
1-4	3 495	3 737	3 389	10 621	2 078	1 173
5-9	8 400	5 092	2 407	15 899	1 035	463
10-14	8 240	4 998	2 052	15 290	812	321
15-19	6 468	4 757	1 774	12 999	1 034	535

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.

Table 3A. Poliovaccine Status - United States, 1965. Ages Under 20 Years - Nonwhite Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)

Percent with Doses as Specified

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and 0 OPV
1-4	19.4	16.7	23.4	59.6	23.0	17.5
5-9	41.4	22.3	17.6	81.3	13.9	4.8
10-14	45.0	21.6	19.3	85.9	11.2	2.9
15-19	40.1	23.6	18.4	82.1	13.6	4.3

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.

Table 3B. Poliovaccine Status - United States, 1965. Ages Under 20 Years - Nonwhite Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)

Number of Persons (thousands)

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and 0 OPV
1-4	510	440	615	1 565	604	459
5-9	1 228	660	522	2 410	413	141
10-14	1 205	579	516	2 300	301	77
15-19	836	491	383	1 710	284	89

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.

Table 4. Poliovaccine Status - United States, 1965. Ages Under 20 Years
Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)

Percent with Doses as Specified
Standard Metropolitan Statistical Areas

					l <del>e</del> 1 . 0 . 1	
	3 or more IPV	3 or more IPV	Less than 3 IPV		Incomplete Series* 1,2 OPV + 1,2 IPV	O IPV
	and	and	and	Total	1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV	and
Age	3 OPV	Less than 3 OPV	3 OPV	Iotai	0 OPV + 1,2 IPV	0 OPV
	3 OFV	Less than 5 OFV	3 OPV		0 OPV + 1,2 IPV	O OPV
		<u>Ce</u>	ntral Cities - To	<u>tal</u>		
1-4	23.0	26.6	22.2	71.8	18.3	9.9
5-9	43.9	30.7	14.3	88.9	8.4	2.7
10-14	46.9	31.2	13.3	91.3	7.0	1.6
15-19	37.9	34.2	13.9	86.0	10.1	3.9
			1 0:::			
		<u>Ce</u>	ntral Cities - Wh	<u>ite</u>		
1-4	24.5	29.6	22.6	76.7	15.4	7.9
5-9	44.9	32.0	14.0	90.9	6.8	2.4
10-14	48.1	32.8	11.9	92.8	6.0	1.2
15-19	38.8	36.4	13.0	88.2	8.5	3.3
		Cent	ral Cities - Nonw	hite		
	10.4				0.7.0	
1-4	19.4	19.0	21.1	59.4	25.8	14.8
5-9	41.2	27.1	15.3	83.5	13.0	3.5
10-14	43.2	26.4	17.2	86.9	10.1	3.0
15-19	34.5	26.2	17.4	78.1	15.9	5.9
		Remainin	 g Population in S	MS Areas		
1-4	25.2	26.6	26.1	77.9	15.6	6.5
5-9	48.4	30.0	14.0	92.3	5.8	1.9
10-14	49.7	31.5	12.2	93.3	5.0	1.7
15-19	45.6	32.7	11.8	90.1	7.1	2.8
		Don't la	tion Outside SMS			
			tion Outside SMS			
1-4	24.3	23.0	24.0	71.4	15.3	13.3
5-9	48.7	24.7	14.8	88.3	7.4	4.3
10-14	51.1	25.5	14.8	91.5	5.7	2.8
15-19	46.8	28.3	13.3	88.5	7.0	4.5

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.

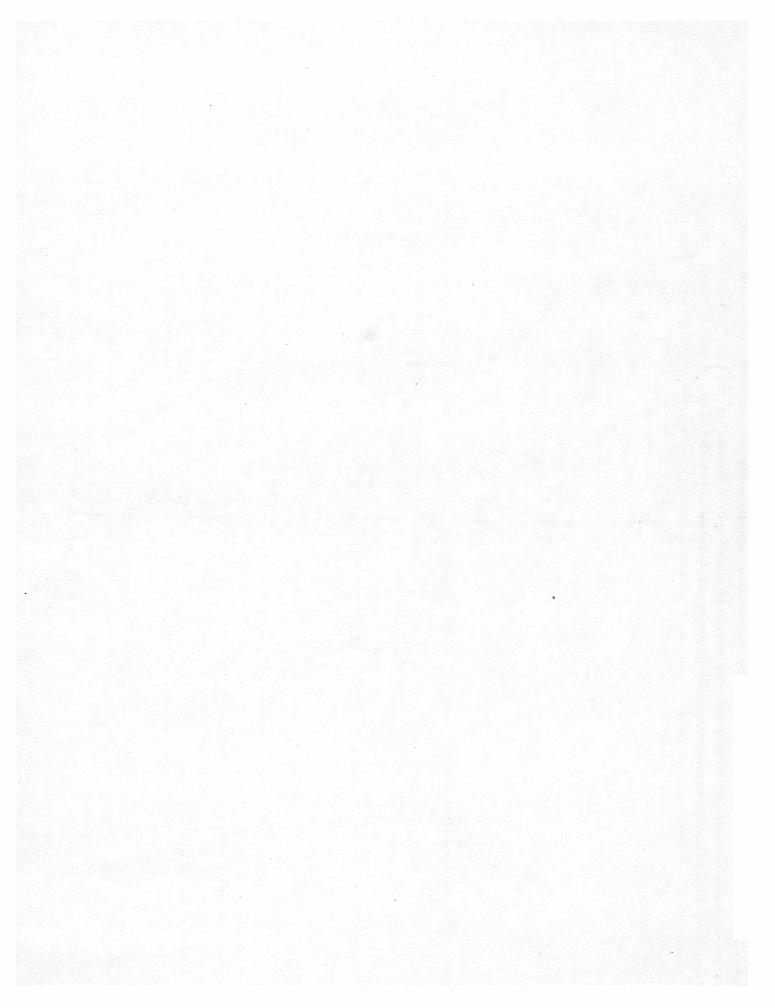
Table 5. Poliovaccine Status - United States, 1965. Ages Under 20 Years
Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)
Percent with Doses as Specified
Geographic Divisions

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and 0 OPV
			New England			
1-4 5-9 10-14 15-19	27.3 57.9 58.3 47.4	21.8 19.6 19.9 30.0	27.5 14.5 14.8 9.8	76.6 92.0 93.0 87.2	16.5 5.7 5.2 9.0	6.8 2.3 1.8 3.8
			   Middle Atlantic			
1-4 5-9 10-14 15-19	29.3 50.5 52.7 42.3	30.9 31.9 31.4 36.9	20.4 10.1 9.0 10.3	80.6 92.5 93.1 89.4	12.9 5.2 4.5 7.3	6.5 2.3 2.4 3.3
		E	 ast North Central			
1-4 5-9 10-14 15-19	18.2 36.2 35.8 31.8	36.4 41.9 44.9 45.0	16.9 11.4 10.0 9.5	71.4 89.5 90.7 86.3	17.7 7.7 7.6 10.0	10.9 2.8 1.7 3.8
		w	 est North Central			
1-4 5-9 10-14 15-19	19.3 36.4 38.8 35.4	35.1 38.3 43.0 43.2	15.5 11.1 10.0 11.1	69.9 85.8 91.8 89.7	17.9 10.3 5.6 6.7	12.1 3.9 2.6 3.6
			   South Atlantic			
1-4 5-9 10-14 15-19	25.3 52.2 56.0 49.8	18.7 22.5 23.2 25.7	27.8 15.0 14.1 13.0	71.8 89.7 93.4 88.5	17.9 7.7 5.1 7.3	10.3 2.5 1.5 4.1
, iso es		E	 ast South Central	- 1111		
1-4 5-9 10-14 15-19	33.1 59.0 64.8 59.5	11.7 13.2 11.2 13.7	31.4 15.5 16.6 17.2	76.1 87.7 92.6 90.4	11.6 5.7 3.7 5.4	12.2 6.7 3.7 4.2

Table 5. cont. Poliovaccine Status - United States, 1965. Ages Under 20 Years
Inactivated Poliovaccine (IPV) and Oral Poliovaccine (OPV)
Percent with Doses as Specified
Geographic Divisions

Age	3 or more IPV and 3 OPV	3 or more IPV and Less than 3 OPV	Less than 3 IPV and 3 OPV	Total	Incomplete Series* 1,2 OPV + 1,2 IPV 1,2 OPV + 0 IPV 0 OPV + 1,2 IPV	0 IPV and 0 OPV
		We	est South Central			
1-4	24.5	13.4	28.4	66.3	17.4	16.3
5-9	51.2	13.1	22.3	86.6	9.9	3.5
10-14	54.4	13.9	21.5	89.7	8.1	2.2
15-19	50.6	15.1	21.2	86.9	8.8	4.3
			Mountain			
1-4	25.3	18.8	31.9	76.0	17.2	6.8
5-9	49.1	16.0	24.1	89.2	5.8	5.1
10-14	59.5	13.1	20.9	93.5	5.3	1.3
15-19	56.6	13.7	21.7	92.0	6.6	1.4
			Pacific			
1-4	22.0	22.0	31.6	75.5	16.8	7.6
5-9	47.9	27.5	17.5	93.0	5.6	1.4
10-14	46.5	30.1	15.9	92.4	5.7	1.9
15-19	43.8	30.8	13.7	88.2	7.8	3.9

<sup>\*</sup>Also includes persons with unknown immunization status and unknown number of doses.



#### Tables 6-10

Section B. Diphtheria-Pertussis-Tetanus Immunization Status  $$\operatorname{Ages}\ 1\text{--9}$$  Years

Table 6. Diphtheria-Pertussis-Tetanus (DPT) Immunization Status - United States, 1965. Ages 1-9 Years

		-	Numbe	er of In	jections		Pe	rcent with
Age	Population (thousands)	0	1-2	3	_ ≥4	<u>Unknown</u> No. Stat	<del>-</del> ()	3 ≥4
1	3 958	495	645	1 925	774	78 40	12.5	48.6 19
2	3 9 67	475	512	1 551	1 331	59 40	12.0	39.1 33.
3	4 214	435	429	1 430	1 799	77 44	10.3	33.9 42
4	4 363	397	429	1 257	2 133	101 46	9.1	28.8 48.
1-4	16 502	1 802	2 015	6 163	6 037	315 170	10.9	37.3 36.
5-9	20 361	1 035	1 487	3 614	13 461	608 155	5.1	17.7 66

Table 7. Diphtheria-Pertussis-Tetanus (DPT) Immunization Status United States, 1965. Ages 1-9 Years
Percent with Specified Doses by Race

To the arts are	Total	White	Nonwhite
A 1-1			
Ages 1-4 Percent with no vaccine	10.9	8.6	23.2
Percent with 3 doses	37.3	38.7	30.1
Percent with 4 or more	36.6	39.1	23.2
Percent with 3 or more	73.9	77.8	53.3
Ages 5-9			
Percent with no vaccine	5.1	4.0	11.3
Percent with 3 doses	17.7	17.3	20.2
Percent with 4 or more	66.1	68.7	51.0
Percent with 3 or more	83.9	86.0	71.2

Table 8. Diphtheria-Pertussis-Tetanus (DPT) Immunization Status United States, 1965. Ages 1-9 Years
Standard Metropolitan Statistical Areas

	Per	cent with S	Specified Number	of Injections
	0	3	4 or More	3 or More
			Ages 1-4	
Central Cities	9.2	36.1	37.0	73.1
White	7.2	38.0	40.7	78.7
Nonwhite	15.2	31.4	27.6	59.0
Remaining SMS Areas	7.5	39.8	38.7	78.5
Areas Outside SMS Areas	15.5	35.9	34.1	70.0
			Ages 5-9	
Central Cities	3.9	16.3	66.6	82.9
White	3.5	15.8	69.0	84.8
Nonwhite	5.2	17.6	59.9	77.5
Remaining SMS Areas	3.4	17.0	69.2	86.2
Areas Outside SMS Areas	7.7	19.6	62.6	82.2

Table 9. Diphtheria-Pertussis-Tetanus Immunization Status United States, 1965. Ages 1-9 Years
Major Geographic Divisions

				Percent	with a	Specifi	led Num	ber of	Injecti	ons		
Age	0	1-2	3	≥4	0	1-2	3	≥4	0	1-2	3	≥4
		New	Engla	and		Middl	e Atla	ntic	Eas	t Nort	h Cent	ral
1-4	7.1	8.0	46.9	35.9	6.8	14.5	36.3	39.6	10.8	13.1	39.9	33.9
5-9	3.6	6.0	20.0	67.8	4.7	9.3	19.4	63.0	4.4	7.3	15.9	69.3
	Wes	t Nort	h Cent	ral		Sout	h Atla	ntic	Eas	t Sout	h Cent	ral
1-4	9.8	11.5	45.7	32.4	13.2	10.2	34.0	39.0	16.7	11.7	30.7	34.7
5-9	5.3	8.0	21.5	63.6	4.6	5.4	18.1	66.8	9.8	6.6	18.4	59.5
	Wes	t Sout	h Cent	ral		Mou	ntain			Pacif	ic	
1-4	20.4	8.6	26.9	40.2	8.5	11.7	48.6	28.8	7.2	15.7	36.1	37.8
5-9	9.6	6.0	13.0	67.6	4.9	6.6	24.4	59.1	2.2	8.5	15.9	69.3

Table 10. Diphtheria-Pertussis-Tetanus Immunization Status - United States, 1965.

Percent of Children, 1-4 Years, with Specified Number of DPT

Injections, by Single Years of Life, by Race

	D . 1 . 1		Numl	ber of Injection	ns
Age	Population (thousands)	0	1-2	3	≥4
			Wh:	ite	
1	3 301	10.5	17.2	51.1	21.2
2	3 341	10.1	12.6	41.3	36.0
3	3 530	8.6	11.2	34.6	45.5
4	3 700	8.2	10.8	29.2	51.8
			No	<u>nwhite</u>	
1	657	28.6	23.7	36.4	11.3
2	626	28.8	24.1	27.0	20.1
3	683	25.5	16.0	30.3	28.3
4	663	21.3	19.5	26.5	32.7

Note: In this table children reported as having an unknown number of injections are included in the percentages computed for 1 dose; those reported with status unknown, in percentages computed for 0 doses.

#### Table 11

Section C. Immunization Status, Infants Under 1 Year

Table 11. Immunization Status, Infants Under 1 Year - United States, 1965.

			Percent with 1	or More
	Population	OPV	IPV	DPT
	(thousands)	Doses	Injections	Injections
United States, Total	3 872	36.6	23.0	62.9
Geographic Divisions				
New England	248	47.6	15.7	63.3
Middle Atlantic	633	32.5	29.9	65.9
East North Central	794	30.2	27.0	64.0
West North Central	280	30.0	28.2	63.9
South Atlantic	583	40.0	21.4	63.8
East South Central	292	43.2	19.9	59.6
West South Central	394	31.2	16.2	48.5
Mountain	182	46.2	17.6	69.2
Pacific	466	43.6	20.0	66.3
Standard Metropolitan Statistics Area Classification	<u>a1</u>			
Central Cities, SMS Areas	1 146	37.9	23.3	61.1
Remaining SMS Areas	1 313	37.2	24.1	67.7
Areas Outside SMS Areas	1 413	35.0	21.9	59.9

Note: In this table, infants reported as having an unknown number of doses or injections are considered to have 1 dose or injection.

#### Tables 12-13

Section D. Measles History and Measles Vaccine History, by Age, for the United States

Table 12. Percent of Persons Reporting History of Measles - United States, 1965.

Ages 0-10 Years

	Population	Percent	Reporting History
Age	(in thousands)	8-Day Measles	3-Day Measles
<1	3 872	2.0	5.9
1	3 958	8.3	15.2
2	3 967	15.7	24.6
3	4 214	23.6	31.3
4	4 363	29.9	36.2
5	4 151	37.3	43.9
6	3 973	46.7	50.5
7	4 019	55.4	58.2
8	4 157	64.3	63.5
9	4 061	67.9	63.9
10	3 994	70.2	64.1

Table 13. Percent of Persons Reporting History of Measles Vaccine - United States, 1965. Ages 0-9 Years

Age	Population (in thousands)	Percent with History of Measles Vaccine
<1	3 872	6.5
1-4	16 501	33.2
5-9	20 361	19.3

#### Tables 14-15

Section E. Standard Errors of the Estimated Percentages Computed by the Bureau of the Census

The standard errors presented in Tables 14 and 15 provide an indication of the order of magnitude of the standard errors rather than precise values for any specific item. In order to derive standard errors that would be applicable to the wide variety of items and could be prepared at moderate cost, a number of approximations were required.

#### Table 14. Standard Error of the Estimated Percentage

## A. Of Persons who Received Inactivated Poliovaccine; and of Persons who Received DPT Immunization

(68 Chances out of 100)

Estimated				Base of Pe	rcentage (	000)		
Percentage	500	1,000	2,500	5,000	10,000	25,000	50,000	100,000
2 or 98	1.4	1.0	.6	•4	.3	.2	.1	.1
5 or 95	2.1	1.5	1.0	.7	.5	.3	.2	.2
10 or 90	3.0	2.1	1.3	.9	.7	.4	.3	.2
25 or 75	4.3	3.0	1.9	1.4	1.0	.6	.4	.3
50	4.9	3.5	2.2	1.6	1.1	.7	.5	.3

## B. Of Persons who Received Oral Poliovaccine; and of Persons who Contracted Measles

(68 Chances out of 100)

Estimated				Base of Pe	rcentage (	000)		
Percentage	500	1,000	2,500	5,000	10,000	25,000	50,000	100,000
2 or 98	1.1	.8	.5	.3	.2	.2	.1	.1
5 or 95	1.7	1.2	.8	.5	.4	.2	.2	.1
10 or 90	2.3	1.6	1.0	.7	.5	.3	.2	.2
25 or 75	3.3	2.4	1.5	1.1	.7	.5	.3	.2
50	3.9	2.7	1.7	1.2	.9	.5	.4	.3

## C. Of Persons who Received Both Oral and Inactivated Poliovaccine

(68 Chances out of 100)

Estimated	4	Base of Percentage (000)						
Percentage	250	500	1,000	2,500	5,000	10,000	25,000	
2 or 98	1.7	1.2	.9	.6	.4	.3	.2	
5 or 95	2.7	1.9	1,4	.9	.6	.4	.3	
10 or 90	3.7	2.6	1.9	1.2	.8	.6	.4	
25 or 75	5.4	3.8	2.7	1.7	1.2	.9	.5	
50	6.2	4.4	3.1	2.0	1.4	1.0	.6	

Table 15. Standard Error of Level of Estimates of the Number of Persons Immunized by Type of Immunization

(68 Chances out of 100)

		Standard Error (000)	
Level of Inactivated Estimate Poliovaccine; (000) DPT		Oral Poliovaccine; Measles	Inactivated Poliovaccine and Oral Poliovaccine
250	35	27	31
500	49	39	44
1 000	69	54	61
2 500	109	85	92
5 000	152	120	120
10 000	210	1 65	140
25 000	305	245	
50 000	3 60	305	

### Illustrations for Use of the Tables of Standard Errors (All numbers in thousands)

Table 1A shows that 24.3 percent (4006/16498) of children in the age group 1-4 had received 3 or more injections of IPV and 3 doses of OPV. Using Table 14C, the standard error of 24.3 percent based on 16,498 children is found by taking 25 percent (in the first column) as approximately equal to 24.3 percent and interpolating between the standard errors, 0.9 and 0.5, given in the body of the table under bases 10,000 and 25,000 respectively. Taking the interpolated value as 0.7 of a percentage point, the chances are 68 out of 100 that a complete census would have shown a result between 23.6 and 25.0 percent of children age 1-4 with 3 or more injections of IPV and 3 doses of OPV; and 95 out of 100 that a census result would have been between 22.9 and 25.7 percent.

The standard error of the number of 1-4 year old children, 4,006, who had received 3 or more injections of IPV and 3 doses of OPV can be estimated from Table 15. Referring to this table, the number 4,006 falls between 2,500 and 5,000 in the column "Level of Estimate" so that the standard error of the estimate (fourth column, IPV and OPV) lies between 92 and 120. By linear interpolation, the standard error of the 4,006 children in the 1-4 year age group who were reported to have 3 injections of IPV and 3 doses of OPV is 109 (thousand). The chances are 68 out of 100 that a complete census would have differed by less than 109 thousand; and 95 out of 100 that the difference would have been less than 218 thousand.

Key to all disease surveillance activities are those in each State who serve the function as State epidemiologists. Responsible for the collection, intrepretation and transmission of data and epidemiological information from their individual States, the State epidemiologists perform a most vital role. Their major contributions to the evolution of this report are gratefully acknowledged.

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